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EXAMINER

VU, THAI

ART UNIT	PAPER NUMBER
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2687

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/975,732	SHIELDS ET AL.	
	Examiner	Art Unit	
	Thai N. Vu	2687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1-52 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-8, 14-15, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGuire et al. (U.S. Patent #: 4,920,350; hereinafter McGuire) in view of Anderson (U.S. Patent #: 5,892,481; hereinafter Anderson).

Regarding claim 1, McGuire teaches a subscriber station for a wireless RF data transmission system (abstract), said subscriber station comprising:

said housing having an open side and comprising a heat sink (FIG. 5; open side with heat sink having cooling flanges 12, 15; column 3, lines 39-43);

at least one emissions shielding enclosure secured within said housing (FIG. 5; column 3; lines 27-28);

an RF communications board mounted in said at least one enclosure (FIG. 5, board 20 mounted inside the shield 6, column 3, lines 21-23);

an antenna array mounted to a first side of said at least one enclosure (FIG. 5 antenna array 1; FIG. 1, array of radiation elements 4; column 1, line 63-column 2, line 6) said array operatively connected to said communications board through said at least one shielding enclosure for communicating RF data signals (column 3, lines 34-36; FIG. 5. It is inherently understood that, communication antenna 1 is connected to receive data from and provide to board 20); and

a radome secured over a face of said antenna array (FIG. 5, radome 21; column 3, lines 30-33)

It should be noticed that, Anderson fails to teach the feature of

a spindle extending upwardly from said subscriber station,

a housing rotatably mounted to said spindle,

a radome, sealed to said housing,

However, McGuire teaches the features of

a spindle extending upwardly from said subscriber station (FIG. 6, pole 18; column 5, lines 29-30).

a housing rotatably mounted to said spindle (FIG. 6, housing 14; column 8, lines 15-22).

a radome, sealed to said housing (FIG. 6, radome upper part 15 sealed to lower part 14; column 5, lines 23-29) for searching signals.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the features of
a housing rotatably mounted to said spindle,
a radome, sealed to said housing, as taught by McGuire, in view of Anderson, in order to conveniently provide mechanism for selecting base stations and locking signals.

It should be further noticed that Anderson and McGuire, in combination, fails to teach the feature of
a spindle extending upwardly from said subscriber station.

However, Tatnall teaches such limitations in FIG. 3 (Spindle 54 extending upwardly from the station).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of a spindle extending upwardly from said subscriber station, as taught by Tatnall, in view of Anderson and McGuire, in order to provide facilitate mounting the station from underneath a roof.

Regarding claim 2, Anderson further teaches limitations of the claim in (column 3, lines 34-36; FIG. 5, communication board is mounted inside shield 6).

Regarding claim 3, Anderson further teaches limitations of the claim in (column 3, lines 34-36; FIG. 5, communication board is mounted inside shield 6).

Regarding claim 5, McGuire further teaches limitations of the claim in FIG. 6 motor 80; column 8, lines 15-22 (Dome is rotated by motor to a desired angle for aligning with satellite beam).

Regarding claim 6, McGuire further teaches limitations of the claim in FIG. 6 motor 80; column 8, lines 15-22.

Regarding claim 7, McGuire further teaches limitations of the claim in FIG. 6 motors 60, 74 and 80; column 7, line 1-column 8, line 34.

Regarding claim 8, Anderson further teaches limitations of the claim in FIG. 5, board 20.

Regarding claim 14, Anderson further teaches limitations of the claim in FIG. 5 (shield 6 includes heat sink having cooling flanges 12, 15).

Regarding claim 15, Anderson further teaches limitations of the claim in FIG. 5.

Regarding claim 20, McGuire further teaches limitations of the claim in FIG. 6.

Regarding claim 21, McGuire further teaches limitations of the claim in FIG. 5; column 5, lines 23-49.

4. Claims 4, 9, and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of McGuire and Tatnall as applied to claim 1 above, and further in view of Philips et al. (U.S Patent #:6,072,994; hereinafter Philips).

Regarding claim 4, Anderson, McGuire and Tatnall, in combination, teaches all subject matter as claimed above, except for the feature of the RF communications board comprises an RF transmitter mounted in one of said at least one enclosures and an RF receiver mounted in another of said at least one enclosures. However, Philips teaches such limitations in column 18, lines 23-27, for the purpose of preventing electromagnetic interference (EMI).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of the RF communications board comprises an RF transmitter mounted in one of said at least one enclosures and an RF receiver mounted in another of said at least one enclosures, as taught by Philips, into view of Anderson, McGuire and Tatnall, in order to prevent electromagnetic field, emitted by the antennas and different circuits from interfering with each other.

Regarding claim 9, Anderson, McGuire and Tatnall, in combination, teaches all subject matter as claimed above, except for the features of

an analog to digital converter operatively connected to said RF communications board;

a digital to analog converter operatively connected to said RF communications board.

However, Philips teaches the features of

an analog to digital converter operatively connected to said R-F communications board in FIG. 6B, blocks 602 and 604 and column 20, lines 9-35 for the purpose of processing received waveform; and

a digital to analog converter operatively connected to said RF communications board in FIG. 7A block 710 35 and column lines 1-18, for the purpose of modulating output signal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of

an analog to digital converter operatively connected to said RF communications board;

a digital to analog converter operatively connected to said RF communications board, as taught by Philips, into view of Anderson, McGuire and Tatnall, in order to facilitate the processing received and modulating transmit signals.

Regarding claim 10, Philips further teaches limitations of the claim in FIG. 6B, blocks 602 and 604 and column 20, lines 9-35, FIG. 7A block 710 35 and column lines 1-18 (hiding A/D and D/A converters away from section heavily radiating RF energy is a common practice. Mounting on the opposite side would be one of the choices).

Regarding claim 11, Anderson, McGuire and Tatnall, in combination, teaches all subject matter as claimed above, except for the feature of filtering circuits associated with said communications board. However, Philips teaches limitations of the claim in FIG. 7B, filters 828, 830, 831, 832, 833 and column 36, lines 25-61 for the purpose of removing undesired frequency bands.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of filtering circuits associated with said communications board, as taught by Philips into view of Anderson, McGuire and Tatnall, in order to facilitating transmitting and receiving signal by removing unwanted frequency bands.

Regarding claim 12, Philips teaches limitations of the claim in FIG. 7B, BPF 830, 831, 832, 833 (band-pass filters remove all undesired low frequencies, e.g. acoustical wave).

Regarding claim 13, Philips teaches limitations of the claim in FIG. 7A, LPF 828 (low-pass filter removes all undesired high frequencies, e.g. finite impulse response).

5. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of McGuire and Tatnall as applied to claim 1 above, and further in view of Brettle et al. (U.S Patent #: 4,594,472; hereinafter Brettle).

Regarding claim 16, Anderson, McGuire and Tatnall, in combination, teaches all subject matter as claimed above except for the feature of a gasket captured between sealing surfaces of said housing and said radome, sealing said radome and said housing as a unitary enclosure. However, Brettle teaches such limitations in column 1, lines 8-12, for the purpose of preventing the penetration of electromagnetic or electrostatic energy.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of a gasket captured between sealing surfaces of said housing and said radome, sealing said radome and said housing as a unitary enclosure, as taught by Brettle, into view of Anderson, McGuire and Tatnall, in order to prevent the penetration of water as well as electromagnetic interference.

Regarding claim 17, Brettle further teaches limitations of the claim in column 6, lines 60-68.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of McGuire and Tatnall as applied to claim 1 above, and further in view of Zingle et al. (U.S. Patent #: 5,596,814; hereinafter Zingle).

Regarding claim 18, Anderson, McGuire and Tatnall, in combination, teaches all subject matter as claimed above except for the feature of a breathing orifice sealed with a waterproof, breathable membrane allowing moisture to escape said housing and preventing moisture infiltration through said orifice into said housing. However, Zingle teaches such limitations in the abstract for the purpose of venting moisture during the freeze-frying process.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of a breathing orifice sealed with a waterproof, breathable membrane allowing moisture to escape said housing and preventing moisture infiltration through said orifice into said housing, as taught by Zingle, into view of Anderson, McGuire and Tatnall, in order to keep moisture level low inside the housing and protect the electronic devices from water or chemical attacks.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of McGuire and Tatnall as applied to claim 1 above, and further in view of Harshberger et al. (U.S. Patent #: 5,311,397; hereinafter Harshberger).

Regarding claim 19, Anderson, McGuire and Tatnall, in combination, teaches all subject matter as claimed above except for the feature of an interior of the housing is

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coated with heat absorbing paint facilitating dissipation of heat from within said housing. However, Schultz teaches such limitations in column 5, lines 9-24 for the purpose of enhancing the heat absorbing capabilities of housing.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of the housing is coated with heat absorbing paint facilitating dissipation of heat from within said housing, as taught by Harshberger, into view of Anderson, McGuire and Tatnall, in order to reduce heat generated by electronic components during use.

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGuire in view of Anderson as applied to claim 1 above, and further in view of Bae et al. (U.S. Patent #: 6,232,680; hereinafter Bae).

Regarding claim 22, Anderson, McGuire and Tatnall, in combination, teaches all subject matter as claimed above except for the feature of the subscriber station is suspended adjacent to a vertical surface, spaced apart from said surface, allowing convective heat flow around said station to dissipate heat from said heat sink. However, Bae teaches such limitations in column 6, lines 57-62, for the purpose of cooling the heat sink.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of the subscriber station is suspended adjacent to a vertical surface, spaced apart from said surface, allowing convective heat flow around said station to dissipate heat from said heat sink,

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as taught by Bae, into view of Anderson, McGuire and Tatnall, in order to facilitate the cooling process.

9. Claims 23-26, 28, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of McGuire.

Regarding claim 23, Anderson teaches a wireless RF data communication system subscriber station comprising:

means for RF communication of said data (FIG. 5, board 20, components 19; column 21-33)

means for forming at least one antenna beam (FIG.1, antenna 1 with elements 4; column 1, line 63-column 2, line14) said antenna beam forming means operatively connected to said communication means to communicate said RF data (column 3, lines 34-36; it is inherently understood antenna 1 is connected to board 20);

mean for enclosing said RF communication means (FIG. 5, support structure 6) to shield emissions from and to said antenna beam forming means (column 3, lines 27-28), said antenna beam forming means mounted to said enclosing means (FIG. 5; antenna 1 mounted on structure 6);

It should be noticed that Anderson fails to teach the features of

means for housing said enclosing means and said antenna beam forming means mounted thereto, said housing means comprising means for covering said antenna beams means, while allowing communication on said antenna beams; and

means for controllably rotatably mounting said housing means. However, McGuire teaches

means for housing said enclosing means (FIG. 6 housing parts 14, 15) and said antenna beam forming means mounted thereto (FIG. 6, antenna dish is mounted in the housing 14,15), said housing means comprising means for covering said antenna beams means, while allowing communication on said antenna beams (FIG.6, radome housing 14,15; FIG. 5, lines 22-49).

means for controllably rotatably mounting said housing means (FIG. 6, motor 80; column 8, lines 15-22), for the purpose of protecting and driving the dome housing.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of

means for housing said enclosing means and said antenna beam forming means mounted thereto, said housing means comprising means for covering said antenna beams means, while allowing communication on said antenna beams; and

means for controllably rotatably mounting said housing means, as taught by McGuire, in view of Anderson, in order to keep the antenna maintaining the lock-on with a base station.

It should be noticed that, Anderson and McGuire, in combination fails to teach the feature of means for aiming at least one antenna beam to compensate for interference. However, Hoole teaches such limitation in column 29, lines 20-23 (a beam-former is inherently included at the remote station) for providing high quality communication link.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of means for aiming at least one antenna beam to compensate for interference, as taught by Hoole, in view of Anderson and McGuire, in order to provide communication with high SINR.

Regarding claim 24, Anderson further teaches limitations of the claim in FIG. 1, antenna 1 with several radiation elements 4; column 1, line 63-column 2, line 14.

Regarding claim 25, McGuire further teaches limitations of the claim in FIG. 6, step motors 60, 74 and 80; column 21-35 and column 8, lines 15-22.

Regarding claim 26, McGuire further teaches limitations of the claim in FIG. 6, step motors 60, 74 and 80 located within the housing dome.

Regarding claim 28, Anderson further teaches limitations of the claim in FIG. 5, flanges 12,15; column 3, lines 39-41.

Regarding claim 33, Anderson further teaches limitations of the claim in FIG. 5, flanges 12,15; column 3, lines 39-41.

10. Claims 27, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson in view of McGuire and Hoole as applied to claim 23 above, and further in view of Philips.

Regarding claim 27, Anderson, McGuire and Hoole, in combination, teaches all subject matter as claimed above except for the features of

means for converting analog RF signals to digital signals and digital signals to analog RF signals,

said converting means mounted to an opposite side of said enclosing means from said antenna beam forming means. However, Philips teaches the features of means for converting analog RF signals to digital signals in FIG. 6B, blocks 602 and 604; column 20, lines 9-35 and digital signals to analog RF signals in FIG. 7A block 710 35 and column lines 1-18 said converting means mounted to an opposite side of said enclosing means from said antenna beam forming means (Hiding A/D and D/A converters away from section heavily radiating RF energy is a common practice. Mounting on the opposite side would be one of the choices), for the purpose of processing received waveform and modulating the transmitting signals;

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of

means for converting analog RF signals to digital signals and digital signals to analog RF signals,

said converting means mounted to an opposite side of said enclosing means from said antenna beam forming means, as taught by Anderson, McGuire and Hoole, in order to facilitate the process of transmitting and receiving RF signal.

Regarding claim 29, Anderson, McGuire and Hoole, in combination, teaches all subject matter as claimed above, except for the feature of means for filtering said RF communication of data. However, Philips teaches limitations of the claim in FIG. 7B, filters 828, 830, 831, 832, 833 and column 36, lines 25-61 for the purpose of removing undesired frequency bands.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of means for filtering said RF communication of data, as taught by Philips, into view of Anderson, McGuire and Hoole, in order to facilitating transmitting and receiving signal by removing unwanted frequency bands.

Regarding claim 30, Philips teaches limitations of the claim in FIG. 7B, BPF 830, 831, 832, 833 (band-pass filters remove all undesired low frequencies, e.g. acoustical wave).

Regarding claim 31, Philips teaches limitations of the claim in FIG. 7A, LPF 828 (low-pass filter removes all undesired high frequencies, e.g. finite impulse response).

11. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson, McGuire and Hoole as applied to claim 23 above, and further in view of Zingle

Regarding claim 32, Anderson, McGuire and Hoole, in combination, teaches all subject matter as claimed above except for the feature of means for allowing moisture to escape said housing means; and means for preventing moisture infiltration into said housing means. However, Zingle teaches such limitations in the abstract for the purpose of venting moisture during the freeze-frying process.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of means for allowing moisture to escape said housing means; and means for preventing moisture infiltration

into said housing means, as taught by Zingle, into view of Anderson, McGuire and Hoole, in order to keep moisture level low inside the housing and protect the electronic devices from water or chemical attacks.

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson, McGuire and Hoole as applied to claim 23 above, and further in view of Harshberger.

Regarding claim 34, Anderson, McGuire and Hoole, in combination, teaches all subject matter as claimed above except for the feature of means for absorbing heat from within said housing means for dissipation out of said housing means. However, Schultz teaches such limitations in column 5, lines 9-24 for the purpose of enhancing the heat absorbing capabilities of housing.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of means for absorbing heat from within said housing means for dissipation out of said housing means, as taught by Harshberger, into view of Anderson, McGuire and Hoole, in order to reduce heat generated by electronic components during use.

13. Claims 35-45 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGuire in view Anderson

Regarding claim 35, Anderson teaches a subscriber station for a wireless RF data transmission system, said subscriber station comprising:

the housing having an open side and comprising a heat sink (FIG. 5; open side with heat sink having cooling flanges 12, 15; column 3, lines 39-43).

a plurality of emission shielding enclosures secured within said housing (FIG. 5, shield 6 having plurality shielding sections secured within);

an antenna array mounted to a first side of one of said enclosures (FIG. 1, antenna 1 comprising antenna elements 4), said array operatively connected to said RF receiver and said RF transmitter through said enclosures to communicate RF data signals on at least one of a plurality of antenna beams produced by said array (column 3, lines 34-36; FIG. 5. It is inherently understood that communication antenna 1 is connected, receive from and provide data to board 20)

It should be noticed that, Anderson fails to teach the feature of

a housing controllably rotatably mounted to said spindle,

a radome secured over a face of said antenna array, sealed to said housing, and means for rotating said subscriber station and aiming said array.

However, McGuire teaches the features of

a fixed, overhead secured spindle (FIG. 6, spindle 18 secured by housing 14).

a housing controllably rotatably mounted to said spindle (FIG. 6 housing 14 mounted to spindle 18 can be rotated by motor 80; column 8, lines 15-22),

a radome secured over a face of said antenna array, sealed to said housing (FIG. 6, radome 15 sealed to housing 14), and

means for rotating said subscriber station and aiming said array (FIG. 6, step motors 60, 74 and 80; column 21-35 and column 8, lines 15-22), for searching for signals.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the features of

a housing controllably rotatably mounted to said spindle,
a radome secured over a face of said antenna array, sealed to said housing, and
means for rotating said subscriber station and aiming said array, as taught by McGuire, in view of Anderson, in order to conveniently provide mechanism for selecting base stations and locking signals.

It should be further noticed that, Anderson and McGuire, in combination, fails to teach the feature of a fixed, overhead secured spindle. However, Tatnall teaches such limitations in FIG. 3 (a fixed, overhead secured spindle 54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of a spindle extending upwardly from said subscriber station, as taught by Tatnall, in view of Anderson and McGuire, in order to facilitate mounting the station underneath a roof.

It should be further noticed that Anderson, McGuire and Tatnall, in combination, fails to teach the features of

an RF receiver mounted in a first of said enclosures;
an RF transmitter mounted in a second of said enclosures;

an analog to digital and digital to analog converter mounted to an opposite side of said enclosures from said array. However, Philips teaches

an RF receiver mounted in a first of said enclosures (column 18, lines 23-27);

an RF transmitter mounted in a second of said enclosures (column 18, lines 23-27); and

an analog to digital and digital to analog converter mounted to an opposite side of said enclosures from said array (FIG. 6B, blocks 602 and 604 and column 20, lines 9-35, FIG. 7A block 710 35 and column lines 1-18. Hiding A/D and D/A converters away from section heavily radiating RF energy is a common practice. Mounting on the opposite side would be one of the choices), for the purpose of avoiding undesired electromagnetic interference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of

an RF receiver mounted in a first of said enclosures;

an RF transmitter mounted in a second of said enclosures;

an analog to digital and digital to analog converter mounted to an opposite side of said enclosures from said array, as taught by Philips, into view of Anderson, McGuire and Tatnall, in order to facilitate transmitting and receiving signals.

Regarding claim 36, McGuire further teaches limitations of the claim in FIG. 6, motor 80; and column 7, line 1-column 8, line 34 (microprocessor Z-80 provide logic for controlling the aiming).

Regarding claim 37, Anderson further teaches limitations of the claim in FIG. 5, board 20 mounted within the housing.

Regarding claim 38, Anderson further teaches limitations of the claim in FIG. 5, cooling flanges 12, 15.

Regarding claim 39, Anderson further teaches limitations of the claim in FIG. 5, dome 21.

Regarding claim 40, Anderson further teaches limitations of the claim in FIG. 5, antenna 1 mounted to enclosure 6.

Regarding claim 41, McGuire further teaches limitations of the claim in FIG. 6.

Regarding claim 42, Philips teaches limitations of the claim in FIG. 7B, filters 828, 830, 831, 832, 833 and column 36, lines 25-61.

Regarding claim 43, Philips teaches limitations of the claim in FIG. 7B, BPF 830, 831, 832, 833 (band-pass filters remove all undesired low frequencies, e.g. acoustical wave).

Regarding claim 44, Philips teaches limitations of the claim in FIG. 7A, LPF 828 (low-pass filter removes all undesired high frequencies, e.g. finite impulse response).

Regarding claim 45, Anderson teaches limitations of the claim in FIG. 5, cooling flanges 12, 15 (the wall color can be chosen, black is mostly used for heat sink for the purpose of absorbing heat).

Regarding claim 50, McGuire further teaches limitations of the claim in FIG. 6, spindle 18 secured to housing 14.

Regarding claim 51, McGuire further teaches limitations of the claim in FIG. 5; column 5, lines 23-49.

14. Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGuire in view of Anderson and Philips as applied to claim 35 above, and further in view of Brettle.

Regarding claim 46, Anderson, McGuire, Tatnall and Philips, in combination, teaches all subject matter as claimed above except for the feature of a gasket captured between sealing surfaces of said housing and said radome, sealing said radome and said housing as a unitary enclosure. However, Brettle teaches such limitations in column 1, lines 8-12, for the purpose of preventing the penetration of electromagnetic or electrostatic energy.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of a gasket captured between sealing surfaces of said housing and said radome, sealing said radome and said housing as a unitary enclosure, as taught by Brettle, into view of Anderson, McGuire, Tatnall and Philips, in order to prevent the penetration of water as well as electromagnetic interference.

Regarding claim 47, Brettle further teaches limitations of the claim in column 6, lines 60-68.

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15. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson, McGuire, Tatnall and Philips as applied to claim 35 above, and further in view of Zingle.

Regarding claim 48, Anderson, McGuire, Tatnall and Philips, in combination, teaches all subject matter as claimed above except for the feature of a breathing orifice sealed with a waterproof, breathable membrane allowing moisture to escape said housing and preventing moisture infiltration through said orifice into said housing. However, Zingle teaches such limitations in the abstract for the purpose of venting moisture during the freeze-frying process.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of a breathing orifice sealed with a waterproof, breathable membrane allowing moisture to escape said housing and preventing moisture infiltration through said orifice into said housing, as taught by Zingle, into view of Anderson, McGuire, Tatnall and Philips, in order to keep moisture level low inside the housing and protect the electronic devices from water or chemical attacks.

16. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGuire in view of Anderson and Philips as applied to claim 35 above, and further in view of Harshberger.

Regarding claim 49, Anderson, McGuire, Tatnall and Philips, in combination, teaches all subject matter as claimed above except for the feature of an interior of the

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housing is coated with heat absorbing paint facilitating dissipation of heat from within said housing. However, Schultz teaches such limitations in column 5, lines 9-24 for the purpose of enhancing the heat absorbing capabilities of housing.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of the housing is coated with heat absorbing paint facilitating dissipation of heat from within said housing, as taught by Harshberger, into view of Anderson, McGuire, Tatnall and Philips, in order to reduce heat generated by electronic components during use.

17. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson, McGuire, Tatnall and Philips as applied to claim 35 above, and further in view of Bae.

Regarding claim 52, Anderson, McGuire, Tatnall and Philips, in combination, teaches all subject matter as claimed above except for the feature of the subscriber station is suspended adjacent to a vertical surface, spaced apart from said surface, allowing convective heat flow around said station to dissipate heat from said heat sink. However, Bae teaches such limitations in column 6, lines 57-62, for the purpose of cooling the heat sink.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of the subscriber station is suspended adjacent to a vertical surface, spaced apart from said surface, allowing convective heat flow around said station to dissipate heat from said heat sink,

as taught by Bae, into view of Anderson, McGuire, Tatnall and Philips, in order to facilitate the cooling process.


Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai N. Vu whose telephone number is 571-272-7928. The examiner can normally be reached on 9:00AM-7:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thai N. Vu
Examiner
Art Unit 2687

 5/11/05
ELISEO RAMOS-FELICIANO
PATENT EXAMINER